

CLAIMS

What is claimed is:

1. A method of seeking admission to a computer network, comprising:
- 2 listening, at a first network device, to a communication channel communicatively
 - 3 coupling two or more components of the computer network; and
 - 4 transmitting, from the first network device, a connection request to a controller of
 - 5 the computer network within a designated time slot of the communication channel.
2. The method of claim 1 further comprising confirming the connection request by
- 2 transmitting the connection request from the controller to first ~~network~~ device periodically
 - 3 until a response from the first ~~network~~ device is received by the controller.
3. The method of claim 2 further comprising sending, from the controller to the first
- 2 ~~network~~ device, a connection agreements package including information regarding time
 - 3 slots within the communication channel to be used by the controller for transmitting
 - 4 information to the first ~~network~~ device.
4. The method of claim 3 wherein the connection agreement packet further includes
- 2 information regarding time slots within the communication channel to be used by the first
 - 3 ~~network~~ device when transmitting information to the controller.
5. The method of claim 4 wherein information sent between the first ~~network~~ device
- 2 and the ~~server~~ ^{controller} comprises packets and the connection agreement packet further includes

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3 information regarding the maximum number of bytes the first network device can send or
4 expect to receive in each packet for each type of data included in a packet.

6 1 6. The method of claim 4 further comprising transmitting data from the first ~~network~~
2 device to the controller in the time slots designated in the connection agreement packet.

1 7. A method of seeking admission to a computer network, comprising:
2 determining, at a first network device, whether a communication channel used for
3 communicatively coupling two or more components of the computer network is actively
4 being utilized by the components of the computer network; and
5 transmitting, from the first network device, a message within the communication
6 channel at a time depending upon whether the communication channel is actively being
7 utilized or not.

1 8. The method of claim 7 wherein if the communication channel is not actively being
2 utilized, the first ~~network~~ device listens to the communication channel for a response to the
3 message before changing to a new communication channel.

1 9. The method of claim 8 further comprising listening for channel activity in the new
2 communication channel.

1 10. The method of claim 9 further comprising negotiating for access to the new
2 communication channel if channel activity is detected, otherwise transmitting a connection
3 request message in the new communication channel and awaiting a response thereto.

1 11. The method of claim 10 further comprising repeatedly changing channels and, in
2 each channel, listening for channel activity and either negotiating for channel access or
3 transmitting the connection request message, depending upon whether channel activity is

4 detected, for all available channels until an active channel is found or all available channels
5 have been searched.

1 *sub* 12. A method, comprising:
2 *20* listening, at a network controller, for a connection request message transmitted by a
3 first component seeking access to a communication channel communicatively coupling one
4 or more network components to the network controller; and
5 upon receipt of the connection request message, negotiating bandwidth
6 requirements within the communication channel with the first component.

1 *sub* 13. The method of claim 12 wherein negotiating comprises exchanging further
2 connection request messages between the network controller and the first component to
3 synchronize the first component to the network controller.

1 14. The method of claim 12 further comprising authenticating the first component by
2 comparing a client identifier provided by the first component against a list of known clients
3 prior to negotiating bandwidth requirements.

1 15. The method of claim 12 wherein negotiating bandwidth requirements comprises
2 reallocating bandwidth within the communication channel among the one or more network
3 components and the first component.

1 *sub* 16. A method, comprising accessing a communication channel communicatively
2 *24* coupling components of a computer network by first acting as a communication master to
3 request access to the communication channel and subsequently acting as a communication
4 slave once the request for access to the communication channel has been recognized.

1 17. The method of claim 16 wherein acting as a communication master comprises
2 transmitting the request for access to the communication channel without first being polled
3 to transmit the request.

1 18. The method of claim 16 wherein acting as a communication master comprises
2 listening for a quiet time slot in the communication channel and transmitting the request for
3 access to the communication channel within the quiet time slot.

1 19. The method of claim 16 wherein acting as a communication slave comprises
2 synchronizing to a communication protocol according to terms provided by a network
3 controller.

1 20. The method of claim 19 wherein the terms comprise an indication of time slots
2 within the communication channel during which the first component may expect to receive
3 information from the network controller and during which the first component may
4 transmit information to the network controller.

1 21. The method of claim 3 wherein the connection agreement packet comprises a
2 connection agreement command field that identifies the packet, a forward bandwidth field
3 to specify the number of packets that the first network device can expect to receive from the
4 controller, a reverse bandwidth field to specify the number of packets that the first network
5 device may send to the controller, a field that specifies a preceding on-line network device
6 and a network on-line number.

1 22. The method of claim 1 wherein the connection request identifies a subclient of the
2 first network device.

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1 23. The method of claim 22 wherein the connection request is first transmitted from the
2 subclinet to the first network device across a wireless communication link before being
3 transmitted from the first network device to the controller.

1 24. The method of claim 23 wherein the controller authenticates the subclient prior to
2 allowing the subclient access to the computer network.

1 25. The method of claim 24 wherein the controller further determines whether sufficient
2 bandwidth is available in the communication channel to accommodate the subclient prior to
3 allowing the subclient to access the computer network.

1 26. The method of claim 25 wherein the controller communicates the result of its
2 decision whether or not to allow the subclinet to access the computer network to the
3 subclinet via the first network device.

1 27. A method of providing access to a computer network, comprising:
2 organizing communications within a computer network communication channel
3 into a number of time slots, each time slot being designated for transmissions from one of a
4 number of network components; and
5 including a quiet time slot within the communication channel for use by new
6 network components seeking access to the communication channel.

1 28. The method of claim 27 further comprising transmitting from a first new network
2 component a request for access to the communication channel during the quiet time slot.

1 29. The method of claim 28 wherein the request for access is repeated a number of
2 times during the period of the quiet time slot.

1 30. The method of claim 29 further comprising transmitting a response to the request
2 for access from the first new network component if no other requests for access were
3 received from other new network components at the same time as the request for access
4 transmitted by the first new network component, otherwise not transmitting a response.

1 31. The method of claim 30 wherein if the first new network component does not
2 receive a response to the request for access, the first new network component refrains from
3 transmitting a further request for access to the communication channel for an arbitrary
4 period of time.

1 32. The method of claim 31 further comprising transmitting the further request for
2 access from the first new network component and granting access to the communication
3 channel to the first new network component in response thereto.

1 33. The method of claim 28 further comprising recognizing at a second new network
2 component the request for access transmitted by the first new network component.

1 34. The method of claim 33 wherein the second new network component refrains from
2 transmitting a new request for access to the communication channel in response to
3 recognizing the request for access transmitted by the first new network component.